CTE AND THE COMMON CORE STATE STANDARDS

BY SUSAN REESE

When the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) released the Common Core State Standards in June 2010, it was the culmination of a yearlong process. It resulted in what the two organizations stated was the establishment of clear and consistent goals for learning that would prepare America's children for success in college and work. According to NGA and CCSSO, the K-12 English-language arts and mathematics standards were developed in collaboration with content experts, states, teachers, school administrators and parents, and the final standards were informed by nearly 10,000 public comments and by standards in other top-performing countries. Among the organizations that provided feedback were the National Council of Teachers of English, the National Council of Teachers of Mathematics and the International Reading Association.

The criteria used in creating the Common Core State Standards are:

- They are aligned with expectations for college and career success.
- They are clear, understandable and consistent across all states.
- They include rigorous content and the application of knowledge through high-order skills.
- They build upon strengths and lessons of current state standards.
- They are realistic, for effective use in the classroom.
- They are informed by other top-performing countries, so that all students are prepared to succeed in our global economy and society.
- They are evidence- and research-based.

Among those who expressed support when the standards were released was the Association for Career and Technical Education's (ACTE) executive director, Jan Bray, who said, "The K-12 standards work recognizes that students in the United States are now competing in an international environment and will need to meet international benchmarks to remain relevant in today's workplace. We are pleased that both college and career readiness have been considered as the standards were developed; we view this work as foundational in the effort to address the full range of academic, employability and technical skills that students need to be successful."

Kimberly Green, executive director of the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), noted, "The Common Core State Standards initiative is an important step forward in ensuring that the United States remains competitive in the global economy. Career and technical education (CTE) shares the initiative's goal that all students must be college- and career-ready. CTE programs that incorporate the Common Core

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Standards will ensure students have the academic and technical knowledge and skills to be successful in the 21st century workplace."

For the Students

According to CCSSO and NGA, there are two main reasons that English language arts and math were the first subjects chosen for the Common Core State Standards—first, because they are the two subjects upon which students build skill sets in other subject areas, and second, because they are the most frequently assessed subjects for accountability purposes.

The college and career readiness (CCR) anchor standards for grades six to 12 specify that students should be able to read closely to determine what the text says, make logical references from it, and cite specific textual evidence when writing or speaking to support conclusions. They should also be able to determine central ideas or themes, analyze their development, and summarize the key supporting details and ideas. In addition, they should be able to analyze how and why individuals, events or ideas develop and interact.

The anchor standards include being able to interpret and analyze texts, as well as assess how the point of view or purpose shapes the content and style of a text. Specifically, students should be able to "interpret words and phrases as they are used in a text, including determining technical, connotative and figurative meanings, and analyze how

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specific word choices shape meaning or tone." The standards also address the integration of knowledge and ideas, the ability to evaluate content presented in diverse formats, the ability to evaluate the validity of arguments and evidence, and the ability to analyze how two or more texts address similar topics. Finally, students must be able to "read and comprehend complex literary and informational texts independently and proficiently."

For students who might question the critical importance of reading in CTE courses, the standards note, "When reading scientific and technical texts, students need to be able to gain knowledge from challenging texts that often make extensive use of elaborate diagrams and data to convey information and illustrate concepts. Students must be able to read complex informational texts in these fields with independence and confidence because the vast majority of reading in college and workforce training programs will be sophisticated nonfiction."

Carrie Heath Phillips is director of Common Core State Standards implementation for CCSSO, and she says, "The standards aren't meant to replace CTE standards such as safety and health and entrepreneurship, but are meant to be a complement. In English and math, the standards articulate what students need to know and be able to do to be college- and career-ready, but we don't articulate how students meet those standards, so they can be taught in CTE courses."

In fact, Phillips credits ACTE with providing the work team that helped write the standards with reading and writing samples of technical texts. The texts provided by ACTE demonstrate the level of competency students need when entering careers. Students will need good communication skills in the workplace, and that means reading, writing, listening and speaking. Philips notes that there are literacy standards for social studies, science and technical subjects, and she adds, "Literacy happens across disciplines."

Sometimes it may be easier for students to see the application of math in CTE—whether it is in accounting practices for business, calculations in the construction trades, measurements and quantities in culinary arts, or geometry in computer-assisted design. The Common Core math standards for high school specify the math that all students should study in order to be college- and career-ready, as well as additional math they should learn in order to take advanced courses. The high school standards are in the categories of number and quantity, algebra, functions, modeling, geometry, and statistics and probability.

Phillips notes that in the early grades, math focuses on building core understanding of topics and procedural abilities, but in high school she sees modeling as particularly relevant because, as she explains, "You are taking a real-world problem and making it into a math problem. You have to figure the appropriate math to use and then solve the problem. It's probably the most relevant and directly tied to career readiness."

Phillips doesn't just see the standards as a way to benefit CTE; she also sees CTE as benefiting implementation of the standards. "Math and literacy skills are needed in solving real-world problems," she explains, "and in CTE you are very good at seeing the real-world application and focusing on that. Schools that have career and technical education programs come out ahead."

Dane Linn, who is director of the Education Division of the NGA Center for Best Practices and NGA's lead on the Common Core State Standards, says, "Career and technical education plays a critical role because of its linkage to the workforce system. The programs offered in CTE put students on a trajectory that is directly linked to moving them into ca-

reers that states need." He also recognizes that today's CTE has evolved, noting, "An automotive career, for example, now requires a sophisticated level of math and technology."

Linn sees the standards as benefitting CTE by changing the perception many people have of it as a separate, and perhaps less rigorous program. He says, "CTE has an opportunity to demonstrate to everyone else in the K-12 system that their students are meeting the same standards. Just because they go to a career tech school, it doesn't mean the standards are lowered. Their experiences also put CTE students on a trajectory to move into community colleges and four-year colleges."

For the Teachers

According to NGA and CCSSO, "The standards will provide important goals for teachers to ensure they are preparing students for success in college and the workforce." They are intended to help teachers develop and implement effective strategies for their students by providing benchmarks for skills and knowledge that their students should have by the end of the year. They will also help colleges and professional development programs better prepare teachers; provide the opportunity for teachers to be involved in the development of assessments linked to the standards; allow states to develop and provide better assessments that more accurately measure whether or not students have learned what was taught; and guide educators toward curricula and teaching strategies that will give students a deep understanding of the subject and the skills they need to apply their knowledge.

For the States

After issuing the standards, NGA and CCSSO stated their commitment to an ongoing state-led development process for continuous improvement. They also stated their commitment to assist state policymakers in: developing a guide for implementation of the standards; convening organizations to facilitate discussions about implementation; planning and implementing the future governance structure of the initiative; and convening the publishing community to ensure the creation of high-quality materials aligned with the standards.

Georgia was one of the 48 states and two territories along with the District of Columbia that joined in the effort to develop the Common Core State Standards, and Sonny Perdue of Georgia was selected by NGA to co-chair the initiative. When the new standards were released, Perdue stated, "American competitiveness relies on an education system that can adequately prepare our youth for college and the workforce.

NRCCTE's Research on Math and Literacy in CTE

The National Research Center for Career and Technical Education (NRCCTE) also has projects on the importance of math and reading in CTE. The Math-in-CTE study began as a pilot in the spring semester of 2004, and the full-year study spanned the 2004-2005 academic year. A curriculum integration model, Math-in-CTE is designed to enhance the math embedded in CTE content. It is a process that provides the opportunity for math and CTE teacher teams to work together in communities of practice and to identify where math intersects with CTE concepts and applications. This process leads to the creation of math-enhanced CTE lessons.

Premised on five core principles, the research-based Math-in-CTE model has been shown to have a significant positive impact on student learning in math, with no loss to CTE content. After one year of learning math-enhanced lessons, students in the experimental classrooms performed significantly better on two of the three standardized measures of math achievement. This result was accomplished without reducing students' occupational knowledge and skills.

The Authentic Literacy pilot project followed the Math-in-CTE study, and its findings supported the core principles from the Math-in-CTE project. Reading strategy instruction produced a statistically significant impact on reading comprehension and vocabulary learning, although it did not impact students' motivation to read. Through student focus groups, researchers found that students desired a utility value in their strategy use; students understood the importance of reading to their career; students engaged in reading if they could apply the information; and students desired a social aspect to reading to foster motivation.

NRCCTE's analysis of teacher interviews from the Authentic Literacy project found these main themes related to creating opportunities for successful strategy use in CTE courses: developing teacher confidence, building communities of practice related to literacy, utilizing authentic text in CTE courses, providing professional development in literacy strategies, making strategy adjustments to meet the needs of CTE fields, achieving framework adoption, and experiencing student receptiveness.

For more information about the Math-in-CTE project and the Authentic Literacy project, visit **www.nrccte.org**.

When American students have the skills and knowledge needed in today's jobs, our communities will be positioned to compete successfully in the global economy."

Georgia also represents one example of how the standards are being implemented in the states. On July 8, 2010, the Georgia State Board of Education adopted the Common Core Georgia Performance Standards (CCGPS), which it noted would provide students in Georgia with rigorous knowledge and skills to succeed in college and/or careers, as well as relevant content and application of knowledge through high-order skills.

The CCGPS are also intended to make expectations consistent for all Georgia students, whether they go on to a college or a career, and whether that college or career is in Georgia or in another state. As part of the Georgia implementation of the CCGPS, communication and administrator training was offered in the 2010-2011 school year. Teacher training is scheduled for 2011-2012, and classroom implementation in 2012-2013. The projected timeline for common assessment is 2014-2015.

Linn notes that one of the challenges has been that after the November elections there were 29 new governors, and they all have new education advisers. "Since November we have been educating the new governors and their advisers about the standards, why NGA and CCSSO started them, why they are important, and how the states might start to think about implementation. It's important to make sure that these new governors understand everything about the standards since they're not the ones who decided to adopt them."

A governor's guide will help facilitate the process for governors to create a policy agenda to implement the standards. "The guide will lay out a broad policy framework, and we will provide examples of specific policies we find hold promise," Linn explains. "We are really trying to stress that there is no silver bullet for implementing these policies, but we don't want the governors to have to reinvent the wheel, so that's why we share promising practices."

Linn understands that states face issues such as assessment and accountability, so they want to ensure that the way these issues are dealt with complements implementation of the standards rather than impeding them. Creation of the standards was only the first step. Through their continued efforts, NGA and CCSSO are now focused on helping states achieve a comprehensive implementation.

What's Next

In July, the National Research Council of the National Academy of Sciences, National Academy of Engineering and Institute of Medicine released the *Framework for K-12 Science Education*, a broad set of expectations that will be used to develop new standards for K-12 science and engineering education.

The framework identifies what it calls "three dimensions that convey the disciplinary core ideas and practices around which science and engineering education in these grades should be built." These dimensions are scientific and engineering practices; cross-cutting concepts that unify the study of science and engineering through their common application across these fields; and core ideas in four disciplinary areas: physical sciences, life sciences, earth and space sciences, and engineering, technology and the applications of science.

According to the National Research Council, the overarching goal is for all high school graduates to have sufficient knowledge of science and engineering to engage in public discussions on science-related issues; be careful consumers of scientific and technological information; and have the skills to enter the careers of their choice.

Achieve, an organization that will manage the process for developing the new standards, notes that over the next year, content experts from states across the nation will work together to create science standards based on the framework. The process will include the opportunity for input from those in the field, including K-12 educators, the scientific community, higher education, business leaders and the general public. The new standards should be released in late 2012.

In one final development—and one of great interest to CTE—the National Association of State Directors of Career Technical Education Consortium is involved in the development of the Common Career Technical Core. For more information, see the article on page 26 in this issue of *Techniques*.

Explore More

For more information about the Common Core State Standards and the organizations involved in the initiative, here are some Web sites to visit.

Common Core State Standards
www.corestandards.org

Council of Chief State School Officers
www.ccsso.org

National Governors Association
www.nga.org

Achieve
www.achieve.org

National Research Council
www.nationalacademies.org/nrc

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